

Benbow (U.S. Patent No. 4,491,789). Finally, the title of the invention has been deemed non-descriptive and a new title has been required.

TITLE

In the title of the invention, please delete “and Methodology” and after “Configuration” insert -- Using Common Components --.

35 U.S.C. §112, 1st PARAGRAPH REJECTIONS

With regard to the 35 U.S.C. §112, 1st paragraph rejection of claims 34-52 and 65-79, it is respectfully submitted that based upon the following remarks, Applicants traverse such rejection. Specifically, there exists a supposed lack of support within the specification which is enabling to one of ordinary skill in the art with respect to:

- (a) how the antenna is used for transmitting metrology data from at least one of the boards;
- (b) how the Hall effect sensor is used for electrical sensing interaction; and
- (c) the parameters within which the Hall effect sensor detects.

While these elements form no particularly critical aspect of the present invention they are included to complete the concept therein. The present invention is directed to a modular electricity meter whose design allows for greater ease and flexibility of construction while maintaining superior reliability and accuracy during operation by ensuring the proper alignment of critical component parts.

To offer additional background information, numerous U.S. patents were properly incorporated by reference in the originally filed specification. Therein are adequate and fully developed explanations of the above-listed aspects of the present invention. For example, U.S. Patent Nos. 4,881,070; 4,465,970; 5,014,213 and 4,803,484, all disclose devices within the meter for obtaining metering data and for producing output signals for transmission to a remote location.

Additionally, U.S. Patent Nos. 5,694,103; 4,742,296; 4,491,790; 5,027,059; 5,338,996 and 5,523,677, all of which are properly incorporated by reference disclose examples of either a laminated "figure-8" power meter core or a three-legged ferromagnetic meter core used to determine electricity consumption. As this information is properly incorporated by reference, it is believed that there is no basis for such a 112, 1st paragraph rejection.

It is respectfully submitted that the above comments serve to overcome the 35 U.S.C. §112, 1st paragraph rejections of claims 34-52 and 65-79. As such, it is believed that such claims are now in condition for allowance and withdrawal of the rejection and allowance of claims is earnestly solicited.

35 U.S.C. §112, 2nd PARAGRAPH REJECTIONS

Claims 3-11, 13-15, 18, 19, 21, 24, 26, 28, 29, 33-52, 57-59 and 61-79 stand collectively rejected under 35 U.S.C. §112, 2nd paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the present invention. It is respectfully submitted that based upon even a cursory review of the originally submitted specification and

drawings, one of ordinary skill in the art would be fully capable of understanding the rejected terms or phrases. With the following additional comments, Applicants traverse such rejections.

In claims 3-5, the phrase "tapered posts" refer to reference numbers 136, 138 and 152 as are clearly shown in Figure 5. As specified on pages 24-28 of the specification, the "tapered posts" serve to properly align the coils, the Hall effect core and sensor and the basic metrology circuit board in relation to one another for proper functioning of the meter.

In claims 4 and 44, the term "weldments" is referring to the use of one of numerous forms of permanent affixation to connect two component parts into a whole. As recited on page 29, lines 29-34 and on page 26, lines 15-24, the use of various permanent connection methods is specified to permanently connect together various components of the meter.

In claims 5, 21, 29 and 57, the phrase "Hall effect sensor" refers to reference number 128 of Figures 4 and 7-9. Additionally a careful reading of page 24, lines 12-19 will indicate that such a feature (a "figure-8" or three-legged laminated core) can be clearly understood by one of ordinary skill in the art upon a review of properly incorporated U.S. patents 5,694,103 and 4,742,296, for example.

In claims 6, 28, 29, 37, 40, 48, 58, 67 and 74, the phrases "light source" and "light pipe" are rejected. The "light source" refers to an infrared LED (not shown) that would function only when the basic metrology circuit board was functioning properly. *See* page 39, lines 22-30. The "light pipe" refers to reference number 214 and is merely a conduit within the meter which allows a direct viewing of the "light source" so as to allow a field check by appropriate

technical personnel to determine whether or not the meter is properly functioning without interrupting service. See pages 29 and 42, lines 17-24 and 1-11, respectively, as well as, Figures 4 and 6-9.

In claims 7, 26, 34-41, 48, 59, 65-68 and 74, the term "antenna" refers to a usually metal rod or wire for radiating and/or receiving radio wave transmissions. The specification, on page 42 and 43, lines 27-35 and 1-4, discusses the use of a single antenna versus multiple antennas to transmit measured or calculated data from the basic metrology circuit board and/or the optional higher function circuit boards to a remote receiver. Similarly, the specification also discusses the use of the antenna to receive programming instructions or control inputs. One of ordinary skill in the art is well aware of the functionality of an antenna.

In claims 8-11 and 61, the term "chassis" refers to reference number 170 as shown in Figures 4 and 6-9. The chassis may be a molded plastic component part as described on page 27, lines 22-33 of the originally filed specification.

In claim 9, the phrase "circuit board" refers to reference number 162 as shown in Figures 4 and 7. As discussed in the specification on page 26, lines 27-34, the higher function circuit board is an optional feature of the present invention, which is primarily directed to a modular electricity meter whose design allows for greater ease and flexibility of construction while maintaining superior reliability and accuracy during operation by ensuring the proper alignment of critical component parts.

In claims 11 and 61, the phrase "a mechanical meter display" refers generically to non-digital, non-electronic displays of the measured data such as indicated by reference numbers 238 and 260 of Figures 8 and 9, respectively. As discussed in the specification on pages 32 and 33, lines 32-35 and 1-3, respectively, and on pages 33 and 34, lines 30-35 and 1-33, respectively, two such mechanical meter displays have been contemplated. One such display is clock-like having numerous dials that are gear-driven. The other example is that of a mechanical wheel assembly comprising a series of laterally spaced apart wheels similar to the odometer in an older model automobile. In any case, alternative mechanical meter displays would be compatible with the present invention.

In claims 13-15 and 49-51, the phrase "main circuit" refers to reference number 140 as shown in Figures 4, 7-9 and 11. The "main circuit" is the first metrology board, which is responsible for making the basic electricity consumption measurements and calculations for the meter.

In claims 14, 15, 50, 51, 63, 64, 77 and 78, the phrase "nonremovable bridge clip" refers to reference numbers 94 or 96 as shown in Figure 3 and which would be placed in opening 90 as shown in Figures 4 and 10. The bridge clip is used to close the circuit between the spades and the interior components of the device and to prevent meter tampering. *See* specification pages 21 and 22, lines 17-35 and 1-22, respectively.

In claims 18 and 19, the phrase "snap-fit mounting" refers to the ability of certain components of the meter to be assembled without fasteners such as screws. Such technology generally relies on clips and friction-fit components. A fully descriptive narrative of such

construction as is used in the present invention is included in the specification on pages 28 and 29, lines 16-35 and 1-16, respectively.

In claims 24, 33, 62-64 and 76-78, the phrases "main circuit" and "nonremovable bridge clip" have been rejected as being indefinite. *See* the above discussion of claims 13 and 14 for a full explanation of these claimed features.

In claims 19, 42-52, 66 and 69-79, the phrases "common power supply" and "Hall effect sensor" have been rejected as being indefinite. The phrase "common power supply" refers to the use of the same power supply by more than one component. In the present case, a power supply may be carried on the basic metrology board and power therefrom supplied to any additional circuitry via a fixed connector (reference number 164). *See* specification pages 40 and 41, lines 8-23 and 26-34, respectively. For a full explanation of the claimed "Hall effect sensor" see the above discussion of claim 5.

In claims 42-52, the phrase "electrical sensing interaction therewith" refers to the relationship of the component parts – specifically, the coils and the Hall effect sensor. One of ordinary skill in the art would understand the methodology of detecting electricity flow and thus determining electrical consumption using a Hall effect sensor, however, properly incorporated U.S. Patents 5,694,103; 4,742,296; 4,491,790; 5,027,059; 5,338,996 and 5,523,677, give a more thorough explanation of such methodology.

In claims 43 and 70, the phrase "a mechanical based meter display" refers generically to non-digital, non-electronic displays of the measured data such as indicated by reference

numbers 238 and 260 of Figures 8 and 9, respectively. *See* the above discussion of claims 11 and 61 for a further detailed explanation.

In claim 52, the phrase "additional output means" refers to one of the specified means expressed within the claim (and supported within the specification on pages 42 and 43, lines 20-35 and 1-24, respectively) in addition to the "meter display" claimed in independent claim 42 (from which claim 52 depends) as being within the claimed device.

Based on the above comments, it is respectfully submitted that the 35 U.S.C. §112, 2nd paragraph rejections are traversed. Withdrawal of such grounds of rejection and allowance of the claims is earnestly solicited.

35 U.S.C. §102(b) REJECTION

With respect to the 35 U.S.C. §102(b) rejection of claims 1-4, 10-12, 16-20, 22, 23, 25, 27, 30-32, 34-36, 38, 39, 41, 53-56, 60 and 61, and in view of the significant distinctions discussed herein, Applicant respectfully traverses such grounds of rejection with the following remarks.

As discussed in greater detail below, independent claims 1, 16, 25, 34, 38, 42, 53, 65 and 69 encompass certain common aspects that distinguish them from the proposed reference. In such regard, it is respectfully submitted that the reference, Benbow, merely serves to demonstrate the patentability of Applicant's claimed invention. Specifically, Benbow fails to adequately disclose every element of the claimed invention and as such cannot serve at law as an anticipating reference to the present invention under 35 U.S.C. §102. Additionally,

Benbow fails to achieve a corresponding identity of invention with the present invention.

Instead, Benbow discloses an electricity meter that is completely different in its design and method of operation than the present invention.

Before setting forth a discussion of the prior art applied in the Office Action, it is respectfully submitted that controlling case law has frequently addressed rejections under 35 U.S.C. §102.

"For a prior art reference to anticipate in terms of 35 U.S.C. Section 102, every element of the claimed invention must be identically shown in a single reference."

Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 677, 7 U.S.P.Q.2d 1315, 1317 (Fed. Cir. 1988; emphasis added). The disclosed elements must be arranged as in the claim under review. See Lindemann Machinefabrik v. American Hoist & Derrick Co., 730 F.2d 1452, 1458, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). If any claim, element, or step is absent from the reference that is being relied upon, there is no anticipation. Kloster Speedsteel AB v. Crucible, Inc., 793 F.2d 1565, 230 U.S.P.Q. 81 (Fed. Cir. 1986; emphasis added). Anticipation under 35 U.S.C. Section 102 requires that there be an identity of invention. See Shatterproof Glass Corp. v. Libbey-Owens Ford Co., 758 F.2d 613, __, 225 U.S.P.Q. 635, 637 (Fed. Cir. 1985). In PTO proceedings, claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art. In re Sneed, 710 F.2d 1544, 1548, 218 U.S.P.Q. 385, 388 (Fed. Cir. 1983). The following analysis of the present rejections is respectfully offered with guidance from the foregoing controlling case law decisions.

Benbow discloses an electricity meter for measuring various parameters of electric energy consumption via a magneto-mechanical measurement system. Further, Benbow discloses the use of an optical data link tube to communicate information via light impulses with an external programmer/reader. *See* column 4, lines 6-21 and 38-49. While designed for the same overall function, measuring and reporting electricity consumption data, it is respectfully submitted that Benbow is not the equivalent of and does not come close to disclosing the systems and methodologies of the present invention.

The present invention provides multiple embodiments of a system and methodology for providing a modular electricity meter configuration permitting the use of certain common components in combination with a variety of displays (both electrical and/or mechanical) and data output methods. Such systems and methodologies, with the internal use of tapered posts and corresponding openings in such components, as well as, integrated snap-fit arrangements allows for greater strength and physical stability of the meter, while guaranteeing the proper alignment between component parts for accurate operation of the meter without requiring the use of normal construction methods, such as screws or bolts. The data output methods include (but are not limited to) such methods as varied as direct physical reading by field personnel to radio transmissions to a remote location to optical transmission using a specialized reading device.

With regard to independent claims 1, 42, 53 and 69 and their dependent claims 2-15, 43-52, 54-64 and 70-79, respectively, it is respectfully submitted that Benbow fails to disclose the use of resilient connectors between the spades and the basic metrology board. Nowhere

within the proposed reference is there a mention of the use of resilient connectors as an electrical connection between the spades and the metrology board. While the Examiner states that the use of such connectors “appears” to be “well known in the art,” there is no offer of support for such a statement within the proposed reference. As such, Benbow fails to disclose “every element of the claimed invention identically” and thus cannot at law serve as an anticipatory reference to any of claims 1-15.

With regard to independent claims 16, 25 and 34, and their dependent claims 17-24, 26-33 and 35-37, respectively, it is respectfully submitted that Benbow fails to disclose a second circuit board capable of offering customized features beyond the electricity consumption signal of the basic metrology board. Further, Benbow does not disclose a basic metrology board that is electrically connected to the spades.

The apparatus of Benbow utilizes two simple mechanical registers to synchronously mark off the passage of various measures of electricity consumption, such as total consumption and demand during certain daily periods. These registers are purely mechanical in nature and fail to satisfy the claimed features of the present invention – a metrology board and a circuit board. More specifically, the present invention claims a basic metrology circuit board and a circuit board capable of performing customizable features within the meter. As such these measurements taken by these circuit boards may be changed. These circuit boards are capable of being programmed (i.e., customized) where the disclosed mechanical registers of the proposed reference cannot. As a result, it is respectfully submitted that Benbow fails to